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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,382	07/20/2001	Clemens Ruck	US20 00 3003	2313

7590 09/30/2002

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT PAPER NUMBER

2872

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/910,382

Applicant(s)

RUCK ET AL.

Examiner

Arnel C. Lavarias

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Page 8, line 14 and others- Reference numeral 50 not in Figure 1.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. The disclosure is objected to because of the following informalities:

✓ Page 2, line 27- 'sinus or cosines' should read 'sine or cosine'

✓ Page 2, line 31- 'sinus- or cosines-like' should read 'sine- or cosine-like'

✓ Page 3, line 26, 31; Page 7, line 22, 28; Page 8, line 20- 'finemeasuring' should read 'fine-measuring'

✓ Page 5, line 11; Page 12, line 29- 'coarsemeasuring' should read 'coarse-measuring'

✓ Page 8, line 8- 'be' should read 'are'

✓ Page 8, line 10- 'considering' should read 'considered'

✓ Page 8, line 27- all instances of '100A' should read '110A'

✓ Page 8, line 27- '100B' should read '110B'

✓ Page 9, line 19; Page 13, line 7, 14- '8' should read ' $\lambda$ '

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- ✓ Page 9, line 28- '8/8' should read ' $\lambda/8$ '
- ✓ Page 10, line 6; Page 11, line 1, 2, 24- '\*' should read ' $\delta$ '
- ✓ Page 11, line 25- 'B//2' should read ' $\pi/2$ '
- ✓ Page 13, line 12- ' $P_8$ ' should read ' $P_\lambda$ '.

Appropriate correction is required.

### *Claim Objections*

3. Claims 1-5, 8-12, 15-20 are objected to because of the following informalities:

- ✓ Claim 1, line 20- 'wavelengt' should read 'wavelength'. Claims 2-5, and 15 are dependent on Claim 1, and hence inherit the deficiencies of Claim 1.
- ✓ Claim 7, line 2; Claim 16, line 2- 'reference measurement an absolute-measuring' is unclear. The Examiner believes this to mean 'reference measurement *from an* absolute-measuring' for the purpose of examination. Claims 8-12, 17-20 are dependent on Claim 7, and hence inherit the deficiencies of Claim 7.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2, 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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6. ✓ Regarding Claims 2, 17-18, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, 5-10, 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Knowles et al.

With respect to Claims 1, 6, 10, 13, and 14, Knowles et al. discloses a wavemeter, software product, and method for determining a wavelength of an incoming optical beam (See 20 in Figure 2; Figure 6; Figure 10; col. 9, line 20-col. 11, line 29) comprising a coarse-measuring unit for determining in a first wavelength range and with a first accuracy, a first wavelength value as representing the wavelength of the incoming optical beam (See 76 in Figure 10); a fine measuring unit for providing a wavelength determination with a second accuracy for the incoming optical beam, wherein the wavelength determination is ambiguous within the first wavelength range but unambiguous in each of a plurality of unambiguous wavelength ranges, so that a plurality of different wavelength values correspond to a measuring value as measured by the fine-measuring unit for the incoming optical beam and wherein the second accuracy is higher

than the first accuracy (See 84 in Figure 10); an evaluation unit for determining a second wavelength range covering the first wavelength value, and for determining a second wavelength value as the one of the plurality of different wavelength values that corresponds to the measuring value in the second wavelength range (See col. 9, line 20-col. 11, line 29); and output means for providing the second wavelength value as measuring result of the wavemeter representing the wavelength of the incoming optical beam (See col. 9, line 20-col. 11, line 29); wherein the coarse-measuring unit comprises one or more materials having a wavelength-dependency of reflection and/or transmission (See 76 in Figure 10).

With respect to Claim 2, Knowles et al. discloses the fine-measuring unit comprising means for providing a periodic wavelength dependency (See 84 in Figure 10).

With respect to Claims 5, 7, 15 and 16, Knowles et al. discloses the wavemeter further comprising an absolute-measuring unit having unambiguous wavelength properties (See 90 in Figure 10).

With respect to Claims 8-9, 17-19, Knowles et al. discloses providing a reference measurement being executed prior to determining in a first wavelength range and with a first accuracy a first wavelength value, for calibration before an actual measurement; wherein providing a reference measurement comprises sweeping an input signal over a wavelength range and analyzing a measuring result derived from sweeping an input signal over a wavelength range (See 90 in Figure 10; col. 11, lines 9-29).

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knowles et al. in view of Cargill et al. and Fowles.

Knowles et al. discloses the invention as set forth above in Claims 1 and 6. Knowles et al. lacks the coarse-measuring unit comprising a glass plate with a dielectric coating having one or more layers of materials, chosen from the group of  $\text{MgF}_2$ ,  $\text{SiO}_2$ , or  $\text{CeF}_3$ , on one side and an anti-reflection coating on another side, thus representing a wavelength-dependent beamsplitter. However, Cargill et al. teaches a spectral wavelength discrimination system for accurately determining the wavelength of a beam of radiation (See Figure 2C) wherein the system utilizes a wavelength-dependent beamsplitter (See 34 in Figure 2C), such as a glass plate with alternating layers of  $\text{SiO}_2$  and  $\text{TiO}_2$  (See col. 5, lines 1-59; Figure 3; Table 1). Additionally, Fowles teaches that anti-reflecting films can be formed on a glass substrate surface, such as on glass lenses, to reduce the amount of light reflected from the glass surface (i.e. anti-reflecting films). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a wavelength-dependent beamsplitter made for example from a glass plate with alternating dielectric layers and an anti-reflecting film, as taught by both Cargill et

al. and Fowles, in the wavemeter for determining a wavelength of an incoming optical beam as disclosed by Knowles et al. One would have been motivated to incorporate a wavelength-dependent beamsplitter to reduce the system cost since such beamsplitters are inexpensive. One would have been motivated to provide an anti-reflecting film on the wavelength-dependent beamsplitter to increase the overall optical throughput of the system, thus increasing signal-to-noise ratio and wavelength determination accuracy.

11. Claims 11, 12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knowles et al. in view of Vry et al.

Knowles et al. discloses the invention as set forth above in Claims 1 and 6. Knowles et al. lacks determining the second wavelength range as a wavelength range around the first wavelength range, wherein the second wavelength range is determined by adding and subtracting a value corresponding to half of the period of the unambiguous wavelength range covering the first wavelength value, to and from the first wavelength value. However, Vry et al. teaches a method for determining unambiguously the exact wavelength of a beam (See Abstract; Figure 1) by determining a first coarse wavelength range using measured properties of air, then determining a second wavelength range from the first wavelength range based on the measured and calculated characteristics and free-spectral range of the Fabry-Perot interferometer (See Page 3, line 9-Page 4, line 9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the second wavelength range as a wavelength range around the first wavelength range, as taught by Vry et al., in the wavemeter and method for determining a wavelength of an incoming optical beam as disclosed by Knowles et al.



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One would have been motivated to do this to provide increased accuracy of the wavelength of the beam of light under test.

*Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 703-305-4007. The examiner can normally be reached on M-F 8:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Arnel C. Lavarias  
September 24, 2002



Cassandra Spyrou  
Supervisory Patent Examiner  
Technology Center 2800